

The Frontispiece of the
COSMOGRAPHIC
 Representing the Phœnomena on Tuesday December the 3d 1700,
 by JOHN GARTE, Watch-Maker in Garden-Court, near the F

THE
 EXPLANATION.

It Consists of one large Dyal-Plate, and four lesser Plates, in each Corner one.

THE first and large Dyal-Plate consists of three parts, the first is fix'd, and has engraven on it the Minutes; and in large Roman and Numerical Letters twice Twelves Hours, with the Halves and Quarters.

The second is chiefly moveable, having on it a Figure of the Sun; and at their due distances are engraven in Common and Arabic Characters, the Numbers of the Hours of the Day and Night throughout the World, with their Halves and Quarters.

This has a Diurnal Motion, whereby the Sun, by a Ray trajeeted from it to the Hour in the former Plate, shewes the Hour of the Day at London; and the Number of the Hour on this moving Circle applying it self to the Meridian of each Country in the Map, (hereafter mentioned) shewes what Hour of the Day or Night it is in each of them: By which also, may be found the Horary distances of Places, with several other Matters, which for Brevity sake are omitted.

Upon this, on the Eastern and Western fides are two Arches of a Circle, having the Names of the Months, and Signs of the Zodiac engraven on them to every fifth Degree: These have an Annual Motion, raising and depressing them according to the length or shortness of the Days of the Year; and the Sun abscinds under them at his Setting, and emerges from under them at his Rising; and during the Interval, a Star shews the Hour of the Night.

So that you never see the Figure of the Sun on the Clock, but when the Sun, in the Heavens, is above the Horizon: You also see the Rising and Setting of the Sun, its Entrance into the Signs of the Zodiac, the Arch which they, and the Sun in them, makes above or below the Horizon, with the length of the Day and Night throughout the Year.

Between these two Arches, at the bottom of the Circle, is placed an Equation Table to every seventh Day throughout the Year, to shew how much a true adjusted Clock ought to be slower or faster than the Sun. In this Table, under the Title of every Month, in the first Column contains the Days of the Month, the second Column contains the Minutes and Seconds the Clock ought to be faster or slower than the Sun, according as it is express'd in the same Column.

At the end of this Equation Table is shewed the place of the Sun in the Ecliptick, by the Signs being engraven and divided to every fifth Degree, on the before-mentioned Arches of a Circle; for as they rise and depress from under the Equation Table, that is the Sign the Sun is in: And on the same Arches are engraven the Months of the Year, answering to the Signs of the Zodiac.

The third part is fix'd, and consists of a gilt Plate, in the Circumference whereof is the Equator, divided into 360 Degrees, reckon'd from the Meridian of London; and the Plate it self contains a Map of the Northern Hemisphere of the Earth, in which the Meridians are drawn at the Interval of 15 Degrees, as best serving to shew the the Horary distances, together with the Longitude; but the Parallels of Latitude are drawn at 10 Degrees, as is usual in other Maps.

On the Meridian of 165 Degrees, at its Concourse, with the Parallel Circles, is an Account of how many Italian Miles goes to a Degree, in the severall latitudes.

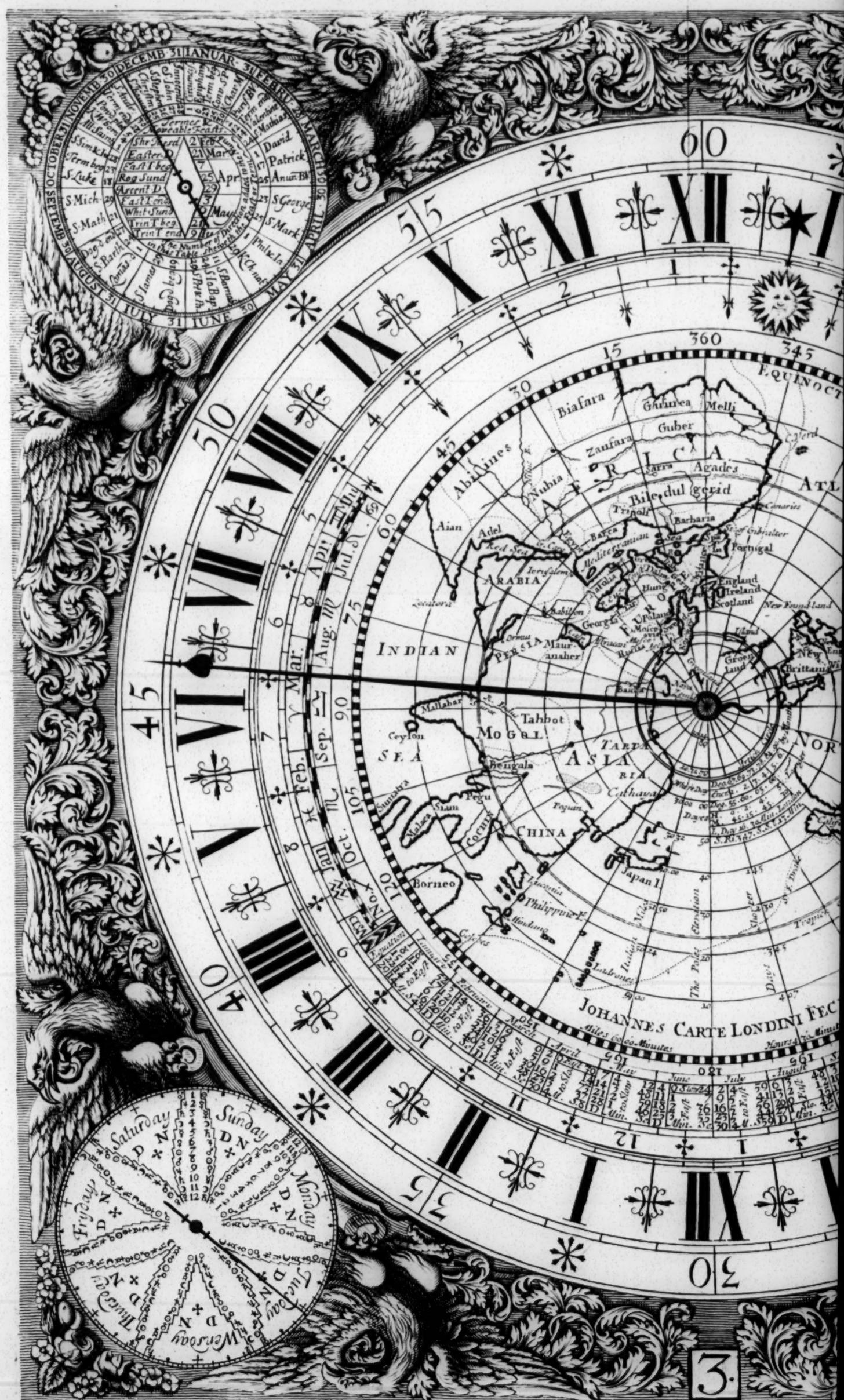
On the Meridian of 180 Degrees, are numbered the Degrees of Latitude.

On the Meridian of 195 Degrees, is an Account of the difference of the longest Day, in their severall Latitudes, from ours at London, whether longer or shorter.

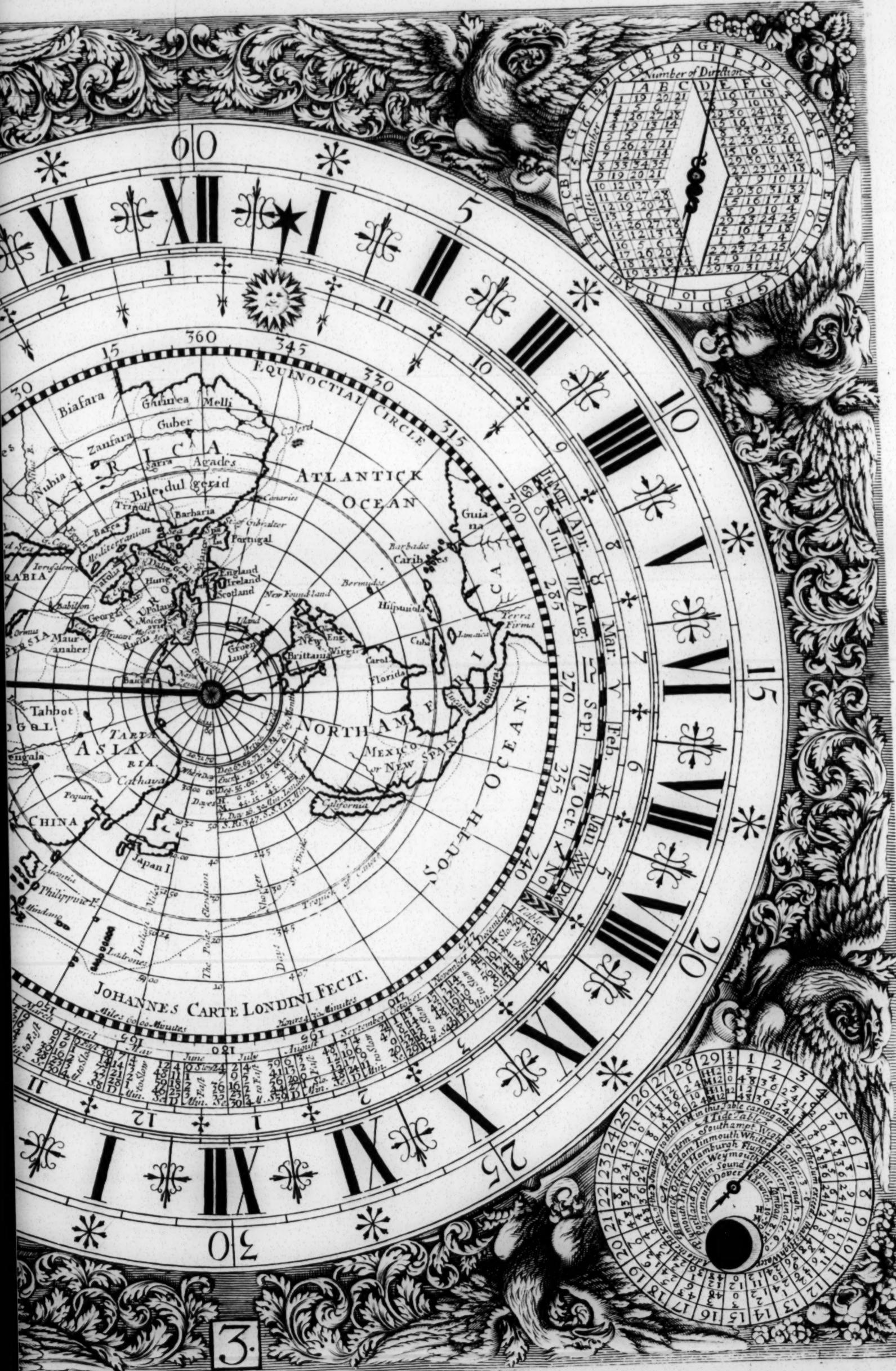
From the Equator to the Elevation of 51 Degrees, their Days are shorter than ours at London, as is mark'd in the Map.

Above the Elevation of 50 Degrees, is mark'd how many Hours and Minutes the longest Day is at London:

At the Elevation of 60 Degrees, is mark'd (Deg.) for Degrees, where 55, 60, 65, 66, is



The Frontispiece of the
A PHICAL CLOCK:
 Number the 3d 1700, three Quarters past Twelve. Invented and Made
 in den Court, near the Fountain in the Middle-Temple, London.



mark'd and underneath them the Hour and Minutes the Days are longer than ours.

From the Elevation of 60° to 90° is mark'd the Degrees, where the Days increase by Months.

The Learned and Ingenious well know, that the Uies of this Plate are too many to be repreſented in this Paper.

Within theſe is a Hand from the Centre, which moving round once in an Hour, ſhewes the Minutes.

And at the bottom of this Dial plate, is ſhewed the Day of the Month.

15° The Southern Hemisphere is placed below on the Cafe, on which is mark'd, with a prick'd Line, Sir Francis Drake's Voyage round the World, agreeable to that on the Northern Hemisphere.

T H E
Four Plates on the Corners are fix'd:

The first by a Hand moving round from the Centre once in a Year, ſheweth on the outermost Circle, the Months of the Year, with how many Days are in each Month. On the ſecond Circle, the Day of the Month, and by a longer Stroak every fifth Day. On the third Circle is ſhewen, the fix'd Feasts, the Terms and remarkable Days throughout the Year. The 4th Circle ſheweth, what Day of the Month each of them happen on.

Within theſe Circles is a Table of the moveable Feasts and Terms, which, by adding the Number of Direction (hereafter mention'd) to the Number in this Table, ſheweth the Day of the moveable Feasts or Terms for ever.

On the ſecond Plate, by a Hand moving round once a Week, is ſhewen the Day of the Week; and on the outermost Circle, the Hour of the Day, (accounted from Mid-night) every third Hour being distinguished by a long stroak; and in the Division belonging to each Day, (from the Centre upward) are engraven the Characters of the Planets, in order as they govern the Hours of the Day and Night: And here note, These Planetary Hours are to be computed by the length or shortness of the Day or Night; which length or shortness is ſhewen on the before mention'd large Plate.

The third Plate on the left ſide has two Hands; the first, or uppermost moves round once in 28 Years, and ſhews on the outermost Circle, the Dominical Letter. The ſecond, or Innermost Hand moves round once in 19 Years, and ſhews on the innermost Circle, the Golden Number. Within theſe Circles is a Table of the Number of Direction, in which, if you ſeek the Dominical Letter on the top, and in the ſide Column on the Left Hand find the Golden Number. In the common Angle you have the Number of Direction, which is the Number of Days to be added to the Day of the Month againſt the moveable Feat or Term, (as is before mention'd in the Description of the first Plate) and the Sum ſhews the true Day of the Month, that the Feat or Term falls on.

As for Example: In the Year 1700, the Dominical Letters are G. F. and the Golden Number 10. (G. being only useful to February 25) enter the Table with F. on the top, and 10 in the ſide Column; and in the Angle of meeting you find 10 to be the Number of Direction; this added to March the 21st, set againſt Easter, gives the 31st of March for Easter Sunday: In the like manner add 10 Days to April the 7th, and you will find Easter Term begins April the 17th. Understand the like of the rest.

The fourth Plate, by a Hand moving round once in 29 Days and a half, ſhews in the outermost Circle, the Age of the Moon. On the ſecond Circle, the time of High-Water at London-Bridge: And on the third Circle the Hour and Minute of the Moons ſouthing. In the middle of theſe Circles, is a Tide-Table, to find the time of High-Water at the Places ſpecified, by adding the Hour and Minute ſet againſt the Port, to the Hour and Minute of the Moons ſouthing, the Sum (rejecting 12, if the Number exceeds) is the exact time of High-Water: This is ſo plain, it needs no Example.

At the bottom of this Table is ſhewed the various Faces of the Moon, according to her encircles and decrease.

By the Author you may also be furnish'd with the best sorts of Clocks and Watches, and have any part of Astronomy, performed by Clock-work, the Art of mending Watches being the difficult part of the Trade and requiring a great deal of Experience; as well as Judgment and Skill in working; he has made ſuch Experiments therein, as have enabled him to mend Watches as to make 'em, ſuperior and go well tho' they have never gone well before.